

Name of the Student: \_\_\_\_\_

Max. Marks : 09 Marks

Time : 09 Minutes

Mark Schemes

Q1.

| Question Number | Acceptable answer | Additional guidance  | Mark |
|-----------------|-------------------|--|------|
|                 | B                 | The only correct answer is B: Upthrust is density of fluid $\times$ volume of object $\times g$<br>A is not the correct answer because density of object has been used, so this is the gravitational force acting on the object<br>C is not the correct answer because this is the resultant force<br>D is not the correct answer because this is the mean of the magnitude of the forces in A and B | 1    |

Q2.

| Question Number | Answer | Mark |
|-----------------|--------|------|
|                 | D      | 1    |

Q3.

| Question Number | Answer | Mark |
|-----------------|--------|------|
|                 | B      | 1    |

Q4.

| Question Number | Answers  | Mark |
|-----------------|--|------|
|                 | The only correct answer is A<br><i>B is incorrect because the drag force increases as the skydiver falls through the air</i><br><i>C is incorrect because the drag force increases as the skydiver falls through the air</i><br><i>D is incorrect because the drag force increases as the skydiver falls through the air</i> | 1    |

Q5.

| Question Number | Acceptable answers | Additional guidance | Mark |
|-----------------|--------------------|---------------------|------|
|                 | C                  |                     | 1    |

Q6.

| Question Number | Answer   | Mark |
|-----------------|--|------|
|                 | <p>The only correct answer is B because</p> $x = F/EA \text{ where } F = mg \text{ so } x = mgl/EA = \frac{24 \times 9.81 \times 1.5}{1.8 \times 10^{11} \times 3.1 \times 10^{-6}}$ | 1    |

Q7.

| Question Number | Answer   | Mark |
|-----------------|--|------|
|                 | <p>A <math>\frac{36000 \times 0.5}{4.5 \times 10^{-4} \times 2.0 \times 10^{-4}}</math></p>  | 1    |
|                 | <p>Incorrect Answers:<br/>           B – incorrect arrangement of equation<br/>           C – incorrect arrangement of equation<br/>           D – incorrect arrangement of equation</p> |      |

Q8.

| Question Number | Answer  | Mark |
|-----------------|---|------|
|                 | <p>C <math>\frac{F/A}{\Delta x/x}</math> (stress/strain)</p>  | 1    |
|                 | <p>Incorrect Answers:<br/>           A incorrect arrangement<br/>           B incorrect arrangement<br/>           D incorrect arrangement for strain</p> |      |

**Q9.**

| Question Number | Acceptable Answers | Reject | Mark     |
|-----------------|--------------------|--------|----------|
|                 | <b>C</b>           |        | <b>1</b> |